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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/936,111	01/16/2002	Gianni Collina	US 18026	9340

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EXAMINER

LU, C CAIXIA

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 11/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/936,111

Applicant(s)

COLLINA ET AL.

Examiner

Caixia Lu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 16-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-40 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>6</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I and species of (2,6-Et₂Ph)-N=C(An)-C(An)=N-(2,6-Et₂Ph)NiBr₂, claims 1-9 and 10-15 in Paper No. 9 is acknowledged. The traversal is on the ground(s) that unity of invention does exist. This is not found persuasive. The common feature shared by Groups I-III, the "catalyst component", and the common feature shared by Groups I and III, the multi-stage process, do not meet the requirement of the "special technical feature" defined in Rule 13.2 because the "catalyst component" and the "catalyst component" are considered as obvious variations over Vaughan et al. (WO 97/48736) in view of Sacchetti et al. (US 5,759,940) as shown in the following rejections under 35 USC 103. Because those features do not define a contribution which each of the inventions makes over the prior art, therefore, there is no unity of invention among Groups I-III.

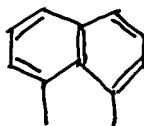
Specification

2. The disclosure is objected to because of the following informalities:

(i) Page 13, third line from the bottom, the term "acenaphtenquinone" should be spelled as -- acenaphtenequinone--.

(ii) Page 15, line 3, the symbol "An" is indicated to refer acenaphtenequinone for the formulas of the page 14. This is inaccurate since acenaphtenequinone is a neutral compound. Furthermore, according to the disclosure of the last paragraph of page 13 of the specification, it seems the two "An" in the formulas together are representing the following portion of formula (V)' of page 13.

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1,8-naphthylene

Appropriate clarification and correction are required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-9 and 10-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1

The porosity of the prepolymer prepared in step (I) is pressed as the percentage of voids; however, the base of the percentage is not defined.

Claim 15

The description of "the two substituents R2 form together an acenaphtenquinone group" is inaccurate for the same reason as shown in above objections.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-9 and 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vaughan et al. (WO 97/48736) in view of Sacchetti et al. (US 5,759,940).

The instant claims are directed to a multi-stage process comprising (I) polymerizing an α -olefin in the presence of a Ziegler-Natta catalyst containing Ti, Mg and Al to provide a porous olefin prepolymer support, (II) support a multidentate late transition metal complex to the prepolymer support of (I), and (III) conducting olefin polymerization in the presence of the supported catalyst of (II).

Vaughan teaches a polymerization process comprising supporting a multidentate late transition metal complex and polymerizing olefins in the presence of the supported catalyst (page 2, line 21 to page 3, line 15; page 9, line 11 to page 14; and Examples of page 15-23).

Vaughan expressly teaches that the immobilized catalyst systems of the late transition metal complex may be prepared by any effective method of supporting other coordination catalyst systems and polymeric carriers are suitable for the catalyst composition. However, Vaughan uses a silica-supported catalyst rather than a polyolefin-supported catalyst in the working examples and Vaughan does expressly teach the preparation of the polymer support.

Sacchetti teaches an olefinic prepolymer prepared by polymerization of one or olefins in the presence of a Ziegler-Natta catalyst comprising trialkyl aluminum and magnesium chloride and a titanium compound and using the prepolymer support to provide a supported metallocene catalyst in the form of spherical particles which produce the polymer with good size distribution and prevent fouling during gas phase

polymerization (col. 5, lines 3-65; col. 7, lines 4-21; and Example 1). Sachetti's prepolymer preparation process reads on that of the instant claims and the prepolymer prepared meets the limitation of the instant claims.

Sacchetti and Vaughan are analogous because they both are from the same area of endeavor of preparation of supported catalyst compositions for olefin polymerizations. Vaughan expressly teaches the multidentate catalyst can be supported by any effective method of supporting other coordination catalyst systems and polymeric carriers can be used as well (col. 11, lines 1-5 and 50-57). Thus, it would have been obvious to a skilled artisan at the time the invention was made to employ Sacchetti's olefin prepolymer support to Vaughan's catalyst composition to provide a supported catalyst with improve particle properties and activity since such is within the scope of Vaughan's teaching and in the absence of showing criticality and unexpected results.

The comparative results regarding the prepolymer supported catalyst composition (Example 1) vs. the supported catalyst composition (Comparative Example 2) on page 29-31 are considered. Based on the examples, applicants have arrived Fig. 1 and, thus, concluded that the activity of the prepolymer supported catalyst is superior to the activity of the silica-supported catalyst. However, it is the examiner's position that the polymerization condition of Example 1 and Comparative Example 2 are not perform under "exactly the same polymerization conditions" in that the pressure of ethylene used in Example 1 (2,960 KPa) is almost three times higher than the ethylene pressure of Comparative Example 3 (1,100 KPa). Thus, one would have expected that the

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amount of polyethylene prepared from Example 1 should be proportionally higher than that of Comparative Example 2, and this is what is reflected in Fig. 1, i.e., applicants have not yet show criticality and unexpected results over the cited prior art.

Furthermore, the showing of unexpected results is not commensurate with the scope of the instant claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caixia Lu whose telephone number is (703) 306-3434. The examiner can normally be reached on 9:00 a.m. to 3:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (703) 308-2450. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1193.


Caixia Lu
Primary Examiner
Art Unit 1713
October 31, 2003